

Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims

Claim 1 (**Currently amended**): A method for patterning an IC (integrated circuit) material, comprising:

forming a rigid organic under-layer over the IC material;
patterning the rigid organic under-layer to form a rigid organic mask structure with a photo-resist mask structure there-over; and
trimming together the rigid organic mask structure and the photo-resist mask structure to lower together a respective critical dimension of each of the rigid organic mask structure and the photo-resist mask structure.

Claim 2 (**Previously Presented**): The method of claim 1, further comprising:
etching away any portion of the IC material not under the rigid organic mask structure.

Claim 3 (**Currently Amended**): The method of claim 1, wherein the step of patterning the rigid organic under-layer includes the steps of:

forming a layer of photo-resist on the rigid organic under-layer;
patterning the photo-resist in a photolithography process to form the photo-resist mask structure; and
etching away any portion of the rigid organic under-layer not under the photo-resist to form the rigid organic mask structure.

Claims 4-5 (**Canceled**).

Claim 6 (Previously Presented): The method of claim 3, wherein the rigid organic under-layer is opaque to light used in the photolithography process to act as a BARC (bottom anti-reflective coating) during patterning of the photo-resist.

Claim 7 (Previously Presented): The method of claim 3, wherein the rigid organic under-layer is transparent or semi-transparent to light used in the photolithography process.

Claim 8 (Previously Presented): The method of claim 1, further comprising:
forming a hard-mask layer between the IC material and the rigid organic under-layer;
etching away any portion of the hard-mask layer not under the rigid organic mask structure to form a hard-mask structure; and
etching away any portion of the IC material not under the hard-mask structure.

Claim 9 (Previously Presented): The method of claim 8, wherein material of the rigid organic under-layer remains on top of the hard-mask structure.

Claim 10 (Previously Presented): The method of claim 8, wherein material of the rigid organic under-layer is completely stripped away from top of the hard-mask structure.

Claim 11 (Previously Presented): The method of claim 1, wherein the rigid organic under-layer is comprised of one of an aromatic addition polymer, an aromatic condensation polymer, or a non-aromatic crystalline polymer; or a carbon film deposited using one of methane, ethane, ethylene, propane, or propylene, in a CVD (chemical vapor deposition) process.

Claim 12 (Previously Presented): The method of claim 1, wherein the critical dimension of the rigid organic mask structure is trimmed to be in a range of from about 10 nanometers to less than about 50 nanometers.

Claims 13-25 (Canceled).

Claim 26 (New): A method for patterning an IC (integrated circuit) material, comprising:
forming a rigid organic under-layer over the IC material;
patterning the rigid organic under-layer to form a rigid organic mask structure with a photo-resist mask structure there-over;
trimming the rigid organic mask structure to lower a critical dimension of the rigid organic mask structure, wherein the photo-resist mask structure is completely etched away during the trimming; and
etching away any portion of the IC material not under the rigid organic mask structure after the step of trimming the rigid organic mask structure.

Claim 27 (New): The method of claim 26, wherein the step of patterning the rigid organic under-layer includes the steps of:
forming a layer of photo-resist on the rigid organic under-layer;
patterning the photo-resist in a photolithography process to form the photo-resist mask structure; and
etching away any portion of the rigid organic under-layer not under the photo-resist to form the rigid organic mask structure.

Claim 28 (New): The method of claim 27, wherein the rigid organic under-layer is opaque to light used in the photolithography process to act as a BARC (bottom anti-reflective coating) during patterning of the photo-resist.

Claim 29 (New): The method of claim 27, wherein the rigid organic under-layer is transparent or semi-transparent to light used in the photolithography process.

Claim 30 (New): The method of claim 26, further comprising:
forming a hard-mask layer between the IC material and the rigid organic under-layer;
etching away any portion of the hard-mask layer not under the rigid organic mask structure to form a hard-mask structure; and

etching away any portion of the IC material not under the hard-mask structure.

Claim 31 (New): The method of claim 30, wherein material of the rigid organic under-layer remains on top of the hard-mask structure.

Claim 32 (New): The method of claim 30, wherein material of the rigid organic under-layer is completely stripped away from top of the hard-mask structure.

Claim 33 (New): The method of claim 26, wherein the rigid organic under-layer is comprised of one of an aromatic addition polymer, an aromatic condensation polymer, or a non-aromatic crystalline polymer; or a carbon film deposited using one of methane, ethane, ethylene, propane, or propylene, in a CVD (chemical vapor deposition) process.

Claim 34 (New): The method of claim 26, wherein the critical dimension of the rigid organic mask structure is trimmed to be in a range of from about 10 nanometers to less than about 50 nanometers.